Review of Renewable Initiatives

James Campbell

July 25, 2007

Overview

- Western Climate Initiative
  - 7 partners
  - 8 observers
- Dr. Ryan Wiser study of RPS's

Western Climate Initiative

Cap-and-Trade 101

Judi Greenwald
Director of Innovative Solutions

Franz T. Litz, Senior Associate

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Key Climate Policy Considerations

- Global problem; needs global solution
- Location of GHG reduction doesn't matter
- Thousands of sources, thousands of solutions
- We know how to get significant GHG reductions--challenge is to get the vast reductions we need over time, cost-effectively

→ ***Markets are especially well-suited to dealing with climate change***

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Why Market Mechanisms?

- Enable linkage with the rest of the world
- Take advantage of "gains from trade"
- Drive innovation
- Create a price for greenhouse gas emissions, and allow market forces to:
  - minimize the cost of making substantial reductions
  - Help find most efficient path to compliance
  - Stimulate technological innovation and lead to further cuts in the future
  - Identify solutions regulators cannot anticipate

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The Role of Market Mechanisms

- Market mechanisms are important, but are just one part of reaching overall emissions reduction goals
- Additional means of reducing GHG emissions should be included:
  - regulatory standards
  - tax incentives
  - public-private technology initiatives, etc.

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Examples of Market Mechanisms

- Emissions Cap-and-Trade
- Carbon Tax or Per Ton Emissions Charge
- Renewable Portfolio Standard (RPS) with Certificates Trading
- Low Carbon Fuel Standard (LCFS) with Certificates Trading
- “Individual Transferable Quotas” in Fisheries

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Renewable Portfolio Standard with Trading

- Government says: minimum amount of electricity will come from renewable sources
- Renewable energy providers compete to supply the load-serving entity with certificates
- Objective: market will be created in certificates, ensuring that the lowest cost renewable energy is obtained
- Achievement of goal is certain (given sufficient time for development and no cap on cost)

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Renewables Portfolio Standards:
An Introduction to State Experience, and Possible Cost Impacts

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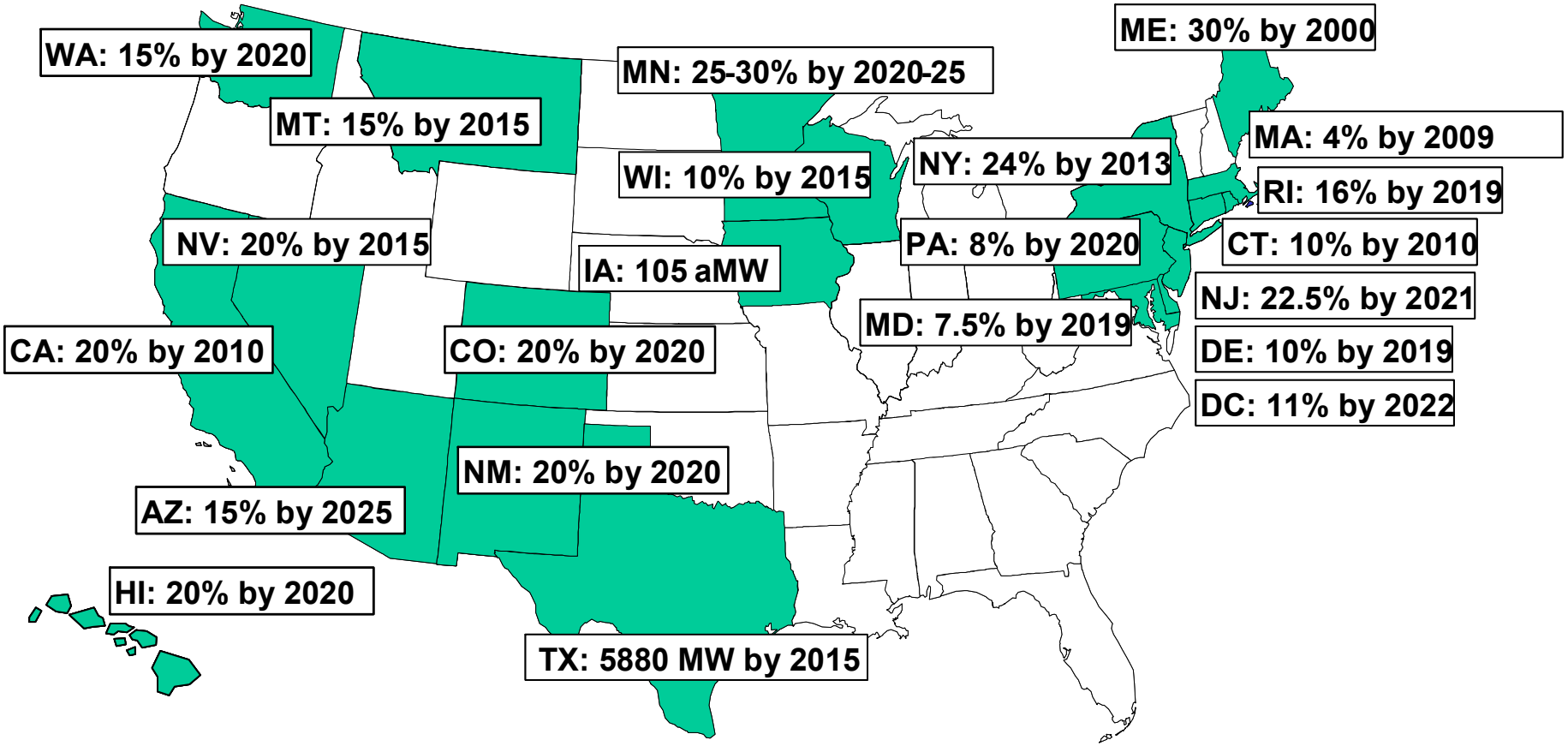
Utah Climate Policy Symposium

May 8, 2007

Advantages and Disadvantages of a Renewables Portfolio Standard

ADVANTAGES	DISADVANTAGES
• Can ensure known quantity of renewable energy • Can lower cost of achieving target by giving private market flexibility • Competitively neutral if applied to all load-serving entities • Relatively low administrative costs and burdens • Can be applied in restructured and regulated markets	• Due to complexity, can be difficult to design well • Less flexible in offering targeted support to *specific* RE sources, or ensuring resource diversity • Cost impacts not known with precision in advance • Questions over whether RPS policies will necessarily lead to long-term contracts • Operating experience is limited

State RPS Policies: 21 States and D.C.



- Additional renewable energy “goals” established in IL, IA, VT, WV, and ME
- New Hampshire and Oregon on verge of creating RPS policies

The Most Important (and obvious) Lesson Learned to Date

An RPS Can Be A…

Elegant, cost effective, flexible policy to meet RE targets

?

Poorly designed, ineffective, or costly way to meet RE targets

The legislative and regulatory design details matter!!!

Variations in Design Are Driven By Different Goals, Market Circumstances, Political Influences

- Result is uneven historical and expected market impacts of state RPS policies
- Some RPS policies seemingly working well…
  - Texas, Minnesota, New Mexico, others
- Other policies are under-performing so far…
  - Under-compliance in Arizona, Nevada, Massachusetts, and California so far
  - Other policies have largely supported or will support existing (not new) renewable generation (ME, MD, etc.)
- Many others are just getting underway, but there are reasons to be concerned

Design Pitfalls

Lenient Geographic Boundaries/Eligibility Restrictions

- Can enlarge the market for RECs, but may also moderate need for new renewable energy capacity and reduce local benefits

Force Majeure Clauses and Cost Caps

- Compliance flexibility should be encouraged, but new RPS policies increasingly including a lot of “wiggle room” to possibly allow escape from full compliance

Funding Caps

- Where funding caps are in place, they may be insufficient to allow the RPS to be achieved

Application to Publicly Owned Electric Utilities

- Publicly owned utilities often exempt or provided more lenient requirements

Design Pitfalls (cont.)

Inadequate Enforcement

- Where full compliance is apparently not being achieved...will penalties be used to enforce compliance?

Policy Instability

- Uncertainty in RPS duration, target, or eligible technologies can impede development

Transmission Bottlenecks

- Some states trying to be more proactive with transmission planning/ construction, but transmission remains a key barrier in many states

Design Complexity

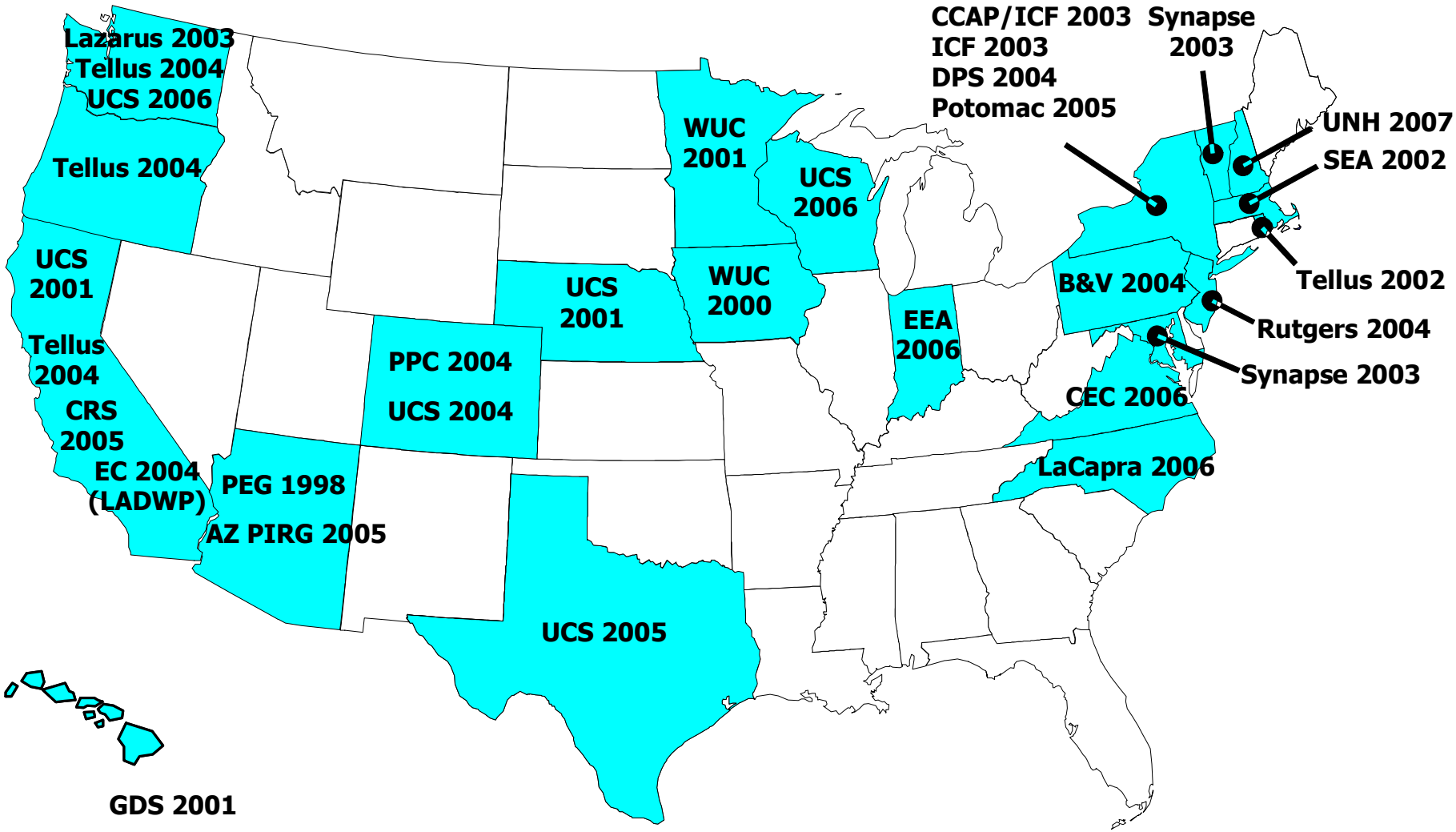
- Is the complexity inherent in the California RPS worth it?

Project Overview

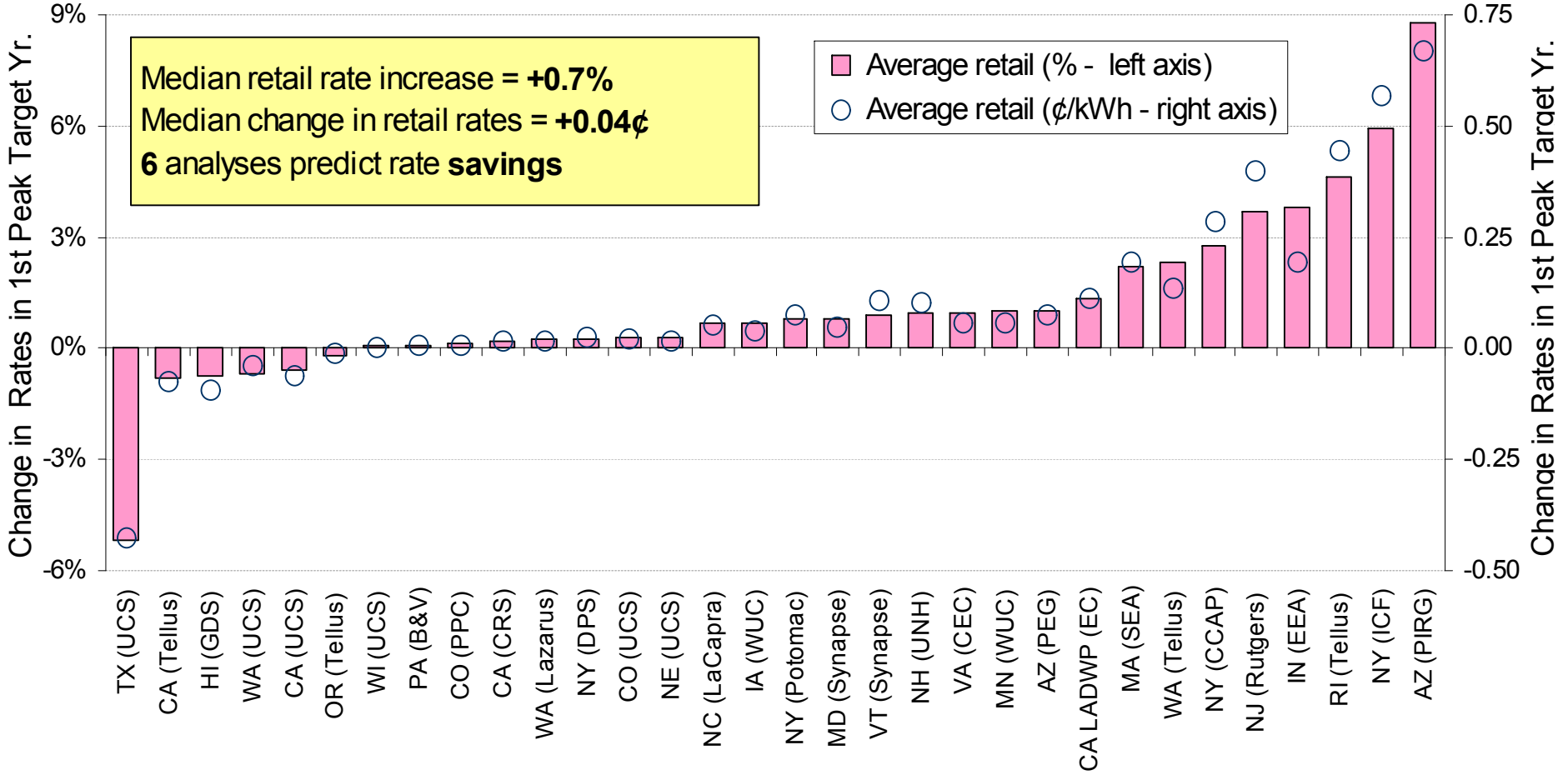
Objective: Review previous state RPS cost-benefit *projections* to compare forecasted impacts across studies, and provide methodological guidance for future RPS cost-benefit projections

- **Project scope**
  - Survey of 30 state RPS cost impact projections in 20 states
  - Sample includes state and utility-level (not federal) analyses in the U.S.
  - Studies present projected (not actual) costs and benefits
- **Comparison of key results**
  - Direct or inferred projected retail rate impacts
  - Projected renewable deployment by technology
  - Scenario analysis; secondary cost impacts; and benefits
  - All results presented here are taken from the first year that each RPS hits its ultimate target level (e.g. 2013 for New York, 2010 for California)
- **Comparison of study methodologies**
  - Modeling approaches; cost characterizations; and key assumptions

State RPS Cost-Impact Study Sample: Who, When, and Where?



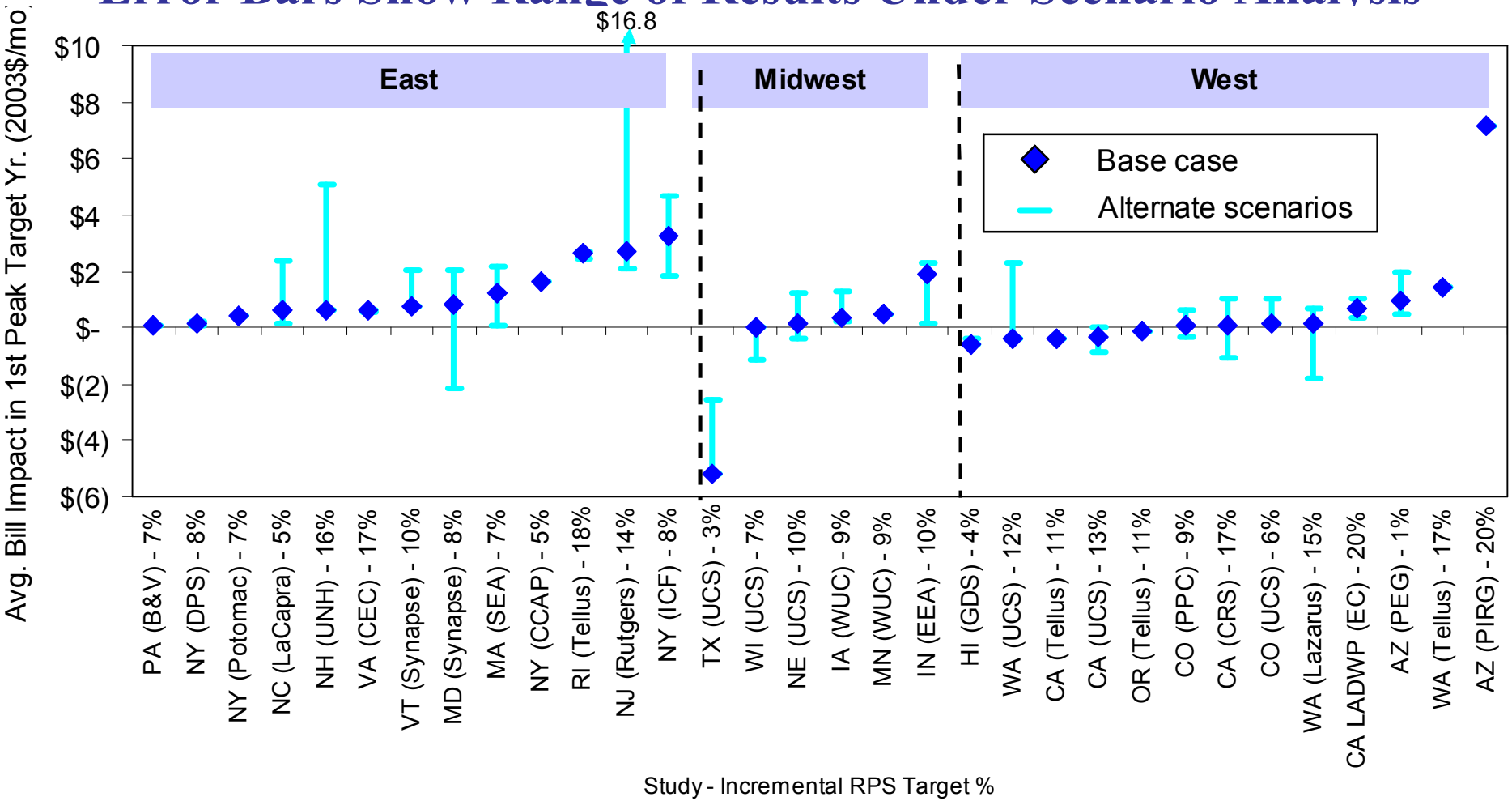
23 of 32* State RPS Analyses Predict Rate Increases of Less Than or Equal to 1%



** Number of analyses is more than 30 because results for each state in CA/OR/WA (Tellus) are shown separately*

Projected Residential Electricity Bill Impacts are Lowest in Midwest and West

Error Bars Show Range of Results Under Scenario Analysis



Conclusions

- Expected cost of state RPS policies is typically modest; benefits are not insignificant
- A state-specific cost-benefit study can be helpful in educating stakeholders
- Actual RPS costs in most states have, in general, been relatively low
- Cost caps and RPS design can be tailored to avoid some adverse cost impacts
- But… it is true that an RPS *may* increase retail electricity rates